

Place Value

Reporting Category Number and Number Sense

Topic Reading, writing, and identifying the place value of six-digit numerals

Materials

- Classroom set of base-10 blocks
- Place Value Mats (attached)
- Numeral Squares (attached)
- Plastic baggies
- Construction paper in six different colors
- Scissors
- Stapler

Vocabulary

digit, place value, number, numeral, standard form, expanded form

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Prior to the lesson, prepare multiple sets of 24 numeral squares (see attachment), and place each set in a plastic baggie. Also, create headbands as follows: Cut strips of construction paper in six different colors, and staple them to make headbands. Designate a color for each of six place values (ones, tens, hundreds, thousands, ten thousands, hundred thousands), and write a place value on each headband. Create enough sets of six headbands so each student will have one.

1. Using base-10 blocks as place value models, demonstrate how to represent place value through the thousands place. Then, explain to students that they will be exploring place value through the hundred thousands place, using place value mats.
2. Assemble students into groups of six, and have each group member put on a place value headband. Give each group a set of 24 numeral squares and a place value mat, and have each group create four six-digit numerals by randomly selecting numerals and putting them in the correct places on the mat: the ones-place student draws a numeral and places it in the ones place; the tens-place student draws a numeral and places it in the tens place, and so forth. After each six-digit number has been created, have each group member write it down.
3. When group work is finished, ask a representative from each group to share the group's six-digit numerals with the class by reading them aloud. Have the class suggest ways to create greater or smaller numbers by moving the digits to different places.

Note: Use this activity throughout the unit to review place value through the hundred thousands place.

Assessment

- **Questions**

- Which digit holds the highest value in a 6-digit numeral?
- What do you do when you do not have any tens in a number?
- Starting with the ones place, what are the place value spaces in order up to the hundred thousands place?
- Where should the comma go when separating place value digits?

- **Journal/Writing Prompts**

- Explain how to determine the value of a digit in a number.
- Create the largest and smallest numbers that you can, using the numerals 1, 3, 5, 7, and 9. Explain why they are the largest and the smallest.

- **Other**

- Check for understanding by prompting students to find a mystery number. Announce randomly which numeral is in which place in the number, and have them write down the numerals in the correct order to create the mystery number (e.g., "The mystery number has a 5 in the hundreds place, a 9 in the ten thousands place, a 1 in the tens place, a 7 in the hundred thousands place, a 3 in the ones place, and a 0 in the thousands place.")
- Tape a three- or four-digit number written on an index card on the back of each student. Have students attempt to discover their numbers by asking classmates "yes" and "no" questions about each digit (e.g., "Is the number in the tens place odd? Is the number in the ones place less than five? Greater than six?") When students think they have figured out their numbers, have them write down the numbers and present them to the teacher for confirmation. Students who are incorrect must return to asking questions about their numbers.

Extensions and Connections (for all students)

- Have students practice reading numbers by reading distances from one place to another.
- Have students demonstrate understanding of place value by changing numbers from standard form into expanded form, and from expanded form into standard form.

Strategies for Differentiation

- Use place value mats to reinforce the concept of place values.
- Use base-10 blocks to model place values.

Place Value Mats

hundred thousands	ten thousands	thousands	hundreds	tens	ones

hundred thousands	ten thousands	thousands	hundreds	tens	ones

hundred thousands	ten thousands	thousands	hundreds	tens	ones

hundred thousands	ten thousands	thousands	hundreds	tens	ones

Numeral Squares

Copy on card stock, and cut apart on the dotted lines.

0	1	2	3	4	5	6	7
8	9	0	1	2	3	4	5
6	7	8	9	0	1	2	3
4	5	6	7	8	9	0	1
2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7
8	9	0	1	2	3	4	5
6	7	8	9	0	1	2	3
4	5	6	7	8	9	0	1
2	3	4	5	6	7	8	9